

An Overview of JPL's Approach to Low Cost Mission Operations

ABSTRACT

Since the beginning of the United States space program, each NASA center has been tasked with designing, implementing and operating the project resources necessary to accomplish its mission objectives. Although cost was a mission consideration, it was always secondary to mission success in the final analysis. As NASA's program matured in the 1980's and 1990's, it became evident that with the reductions in available project resources significant changes were needed if NASA's Jet Propulsion Laboratory (JPL) were to have any space program at all. Therefore, since the mid-1980's JPL has undertaken an effort to remain fiscally responsible to these reduced monies while maintaining its role as the "leader in the exploration of the universe".

Although many approaches have been considered for reducing the cost of operations at JPL, this paper describes several approaches being used and several being evaluated by the Jet Propulsion Laboratory to reduce the cost of mission operations. Five approaches will be presented, including: 1) development of a re-usable ground data system, (2) build to existing capabilities, (3) a consolidation of adaptation resources, (4) development of a set of standard TMOD Services, and (5) the development of an integrated flight and ground architecture. Each of these approaches will be discussed along with results experienced to date, where appropriate.

Because this paper will discuss some approaches which at present are only a "work in process", only results to date with future expectations will be presented where appropriate.

The work described in this paper is being carried out at the Jet Propulsion Laboratory/California Institute of Technology under contract to the National Aeronautics and Space Administration.